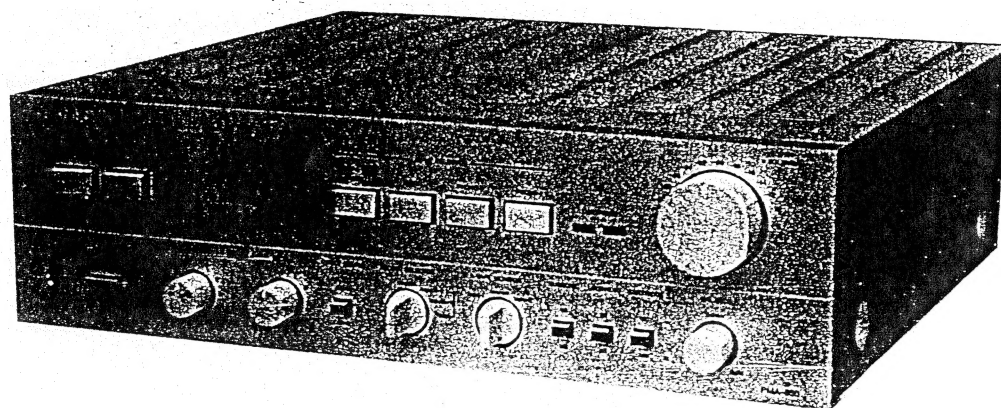


# DENON

Hi-Fi Component Amplifier

## SERVICE MANUAL MODEL PMA-550



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# NIPPON COLUMBIA CO., LTD.

## SPECIFICATIONS

### POWER AMPLIFIER SECTION (TUNER → SPOUT)

Rated Output: Both channels driven  
 20 Hz ~ 20 kHz 100 W + 100 W (8 ohm load THD 0.005%)  
 1 kHz 140 W + 140 W (4 ohm load) (MAX)  
 1 kHz 100 W + 100 W (4 ohm load) (IEC)

Total Harmonic Distortion: Less than 0.005 %

Intermodulation Distortion: Less than 7 kHz/60 Hz: 1/4 0.008% (at amplitude output) equivalent to rated output)

Power Band Width: 5 Hz ~ 100 kHz (IHF, T.H.D. 0.035%)

Transmission Characteristics: 1 Hz ~ 400 kHz  $\pm 0$  dB (at 1 W output)

Input Sensitivity: 150 mV

Input Impedance: 40 k ohm

Output Impedance: 0.1 ohm (1 kHz)

SN Ratio (IHFA Network): 108 dB (Input terminals short-circuited)

Output Terminals: Speaker: A & B load 4 ~ 16 ohm, A + B load 8 ~ 16 ohm; Headphone/ Stereo headphone

### EQUALIZER AMPLIFIER SECTION

Equalizer Amplifier Output (REC OUT Terminal): Maximum output 10 V (at 50 k ohm load)  
 Rated output 150 mV  
 Total harmonic distortion: below 0.001% (at 1 kHz, 8 V output)

Input Sensitivity/Input Impedance:

PHONO-1	MM	2.5 mV	50 k ohm
PHONO-2	MC	125 $\mu$ V	100 ohm
TUNER		150 mV	40 k ohm
AUX, TAPE		150 mV	40 k ohm

RIAA Deviation:

PHONO-1	MM	Within $\pm 0.2$ dB (20 Hz ~ 100 kHz)
PHONO-2	MC	Within $\pm 0.2$ dB (20 Hz ~ 100 kHz)

### OVERALL CHARACTERISTICS

SN Ratio (IHFA Network): PHONO-1 MM 90 dB (Input terminals short-circuited, at 2.5 mV input)  
 PHONO-2 MC 73 dB (Input terminals short-circuited, at 250  $\mu$ V input)

TUNER TAPE AUX 108 dB (Input terminals short-circuited)

Tone Control Adjustable Range:

BASS	100 Hz $\pm 8$ dB
TREBLE	10 kHz $\pm 8$ dB

Filtering Characteristics: EQUALIZER SUBSONIC 18 Hz, 6 dB/oct

Loudness Characteristics: Low Frequency 100 Hz + 7 dB  
 High Frequency 10 kHz + 6 dB

AC OUTLET:  
 (For U.S. and Canada)

Not included in systems for European use

SWITCHES x 2, 100 W (Total)  
 UNSWITCHED x 1 250 W

### POWER SOURCE:

Germany and France: AC 220 V, 50 Hz  
 U.K.: AC 240 V, 50 Hz  
 U.S.A.: AC 120 V, 60 Hz

### POWER CONSUMPTION:

Hong Kong: AC 200 V, 50 Hz  
 260 W (U.S.A.)

430 VA (Canada)

740 W (at maximum output) (IEC)

### DIMENSIONS:

434 mm (W) x 132 mm (H) x 407 mm (D)  
 (including rubber feet, control knobs and terminals)

### WEIGHT:

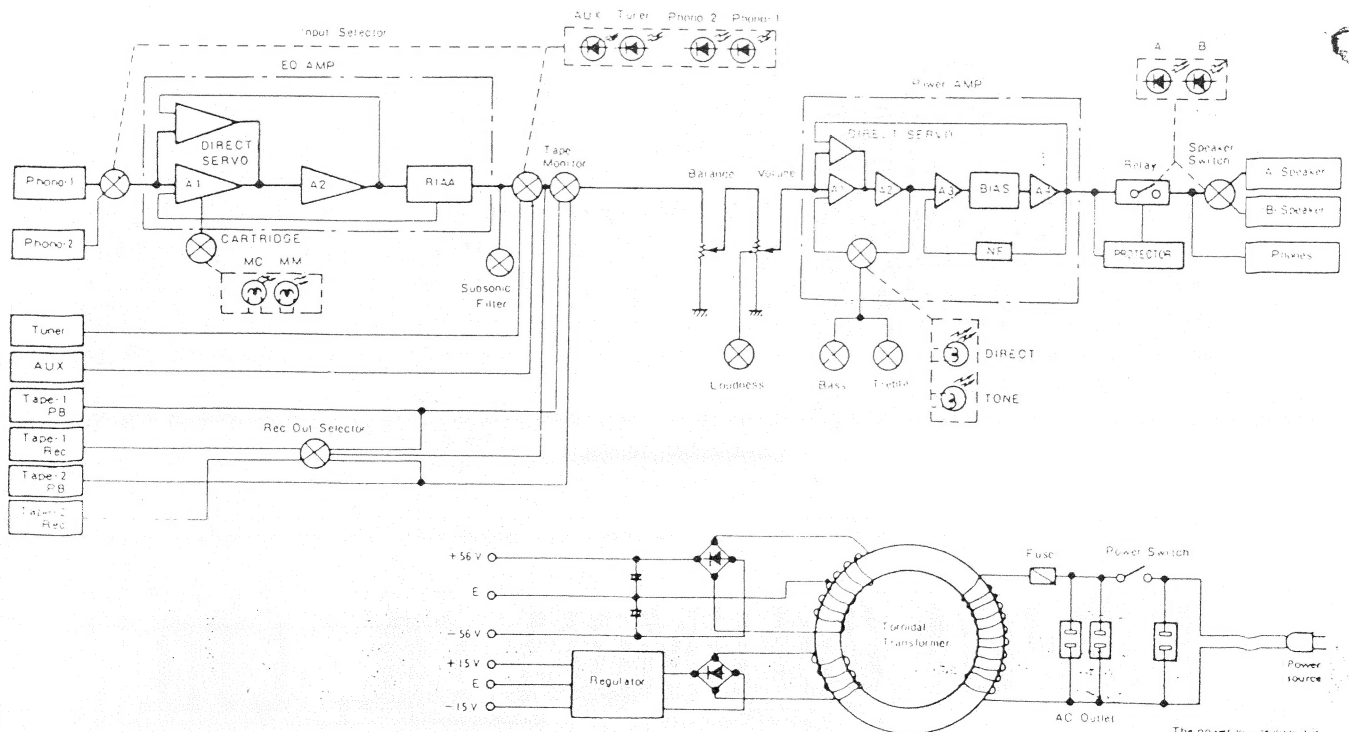
13.5 kg

Design and specifications are subject to change without prior notice

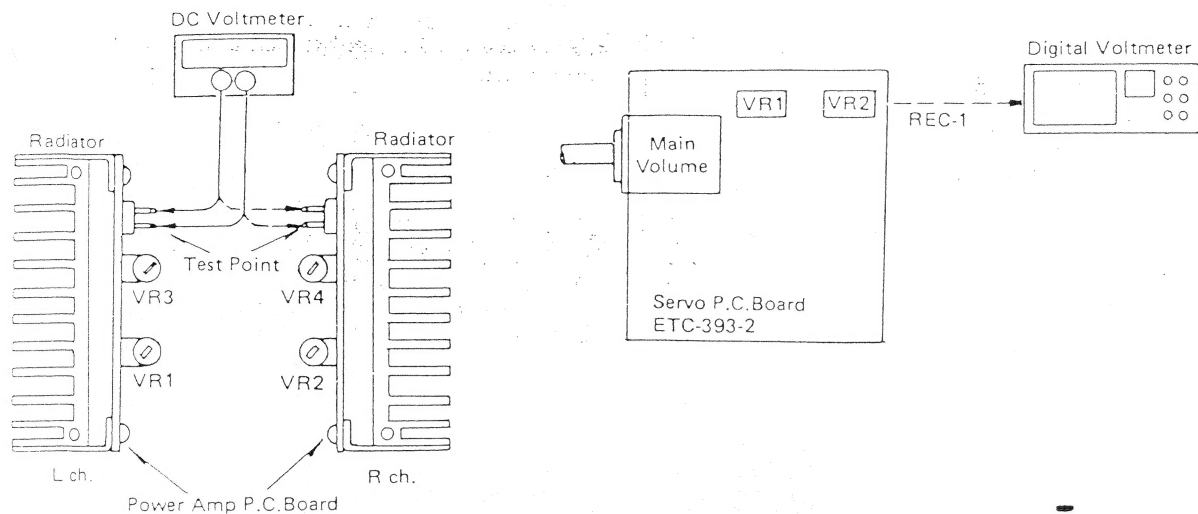
NOTE: The following codes correspond to the appropriate models.

E2 for Europe, EA for Australia, EK for U.K., EC for Canada, E3 for U.S.A.

## BLOCK DIAGRAM



## METHOD OF ADJUSTMENT



### IDLE CURRENT ADJUSTMENT METHOD OF POWER AMP (PUX-028 PRINTED BOARD)

1. Place the unit in normal position, not sideways or tilted. Avoid too much ventilation, since the adjustment must be done where temperature is between 15°C and 30°C.
2. Set the switches on the unit as follows:
 

Power	→ OFF
Volume	→ $-\infty$ dB
Direct couple	→ Direct
Speaker terminals	→ No load (no speaker connected)
3. Remove the top cover, and the VR1, VR2, VR3 and VR4 fully counterclockwise. Connect a DC voltmeter to the test points.
4. Plug in the AC cord to power outlet of: Europe 220 V (198 ~ 231 V); U.K. and Australia 240 V (216 ~ 252 V); Canada and U.S.A. 120 V (108 ~ 126 V); and turn the power on. Immediately (within one minute), turn VR1 and VR2 clockwise and adjust the test point voltage (VTP) to  $7 \pm 2$  mV preliminarily.
5. After about two minutes of the above preliminary adjustment, adjust VR1 and VR2 so as VTP reads  $10 \pm 2$  mV.
6. Adjust VR3 and VR4 so as VTP reads  $25 \pm 2$  mV preliminarily.

### ADJUSTMENT OF SERVO (ETC-393-2 PRINTED BOARD)

#### PREPARATION

1. Insert short pins into PHONE input terminals.
2. Connect a digital voltmeter (0.01 mV ~ 1 mV DC range must be measurable) into each of REC. out terminals (L & R channels).
3. Set the FUNCTION switch to "PHONO-1" position and CARTRIDGE changeover switch to "MM" position and turn the main volume to MIN.

#### ADJUSTMENT

1. Turn POWER on and after two minutes warming-up conduct the following adjustments.
2. Adjust VR1 (100 kohm semi-solid volume), so as the L-channel digital voltmeter reads 0.5 mV DC or less.
3. Adjust VR2 (100 kohm semi-solid volume), so as the R-channel digital voltmeter reads 0.5 mV DC or less.

#### NOTE ON SERVICING REMOTE SWITCH

- (1) Hold the case when remove and install the speaker switch.

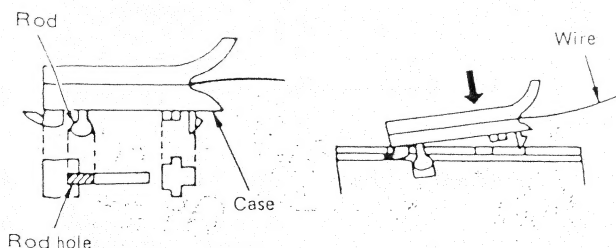


Fig. 1 How to install

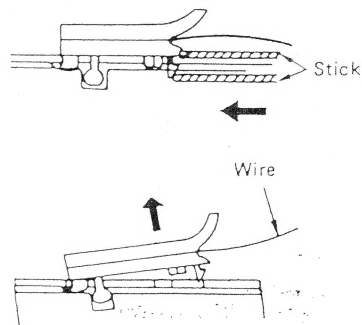
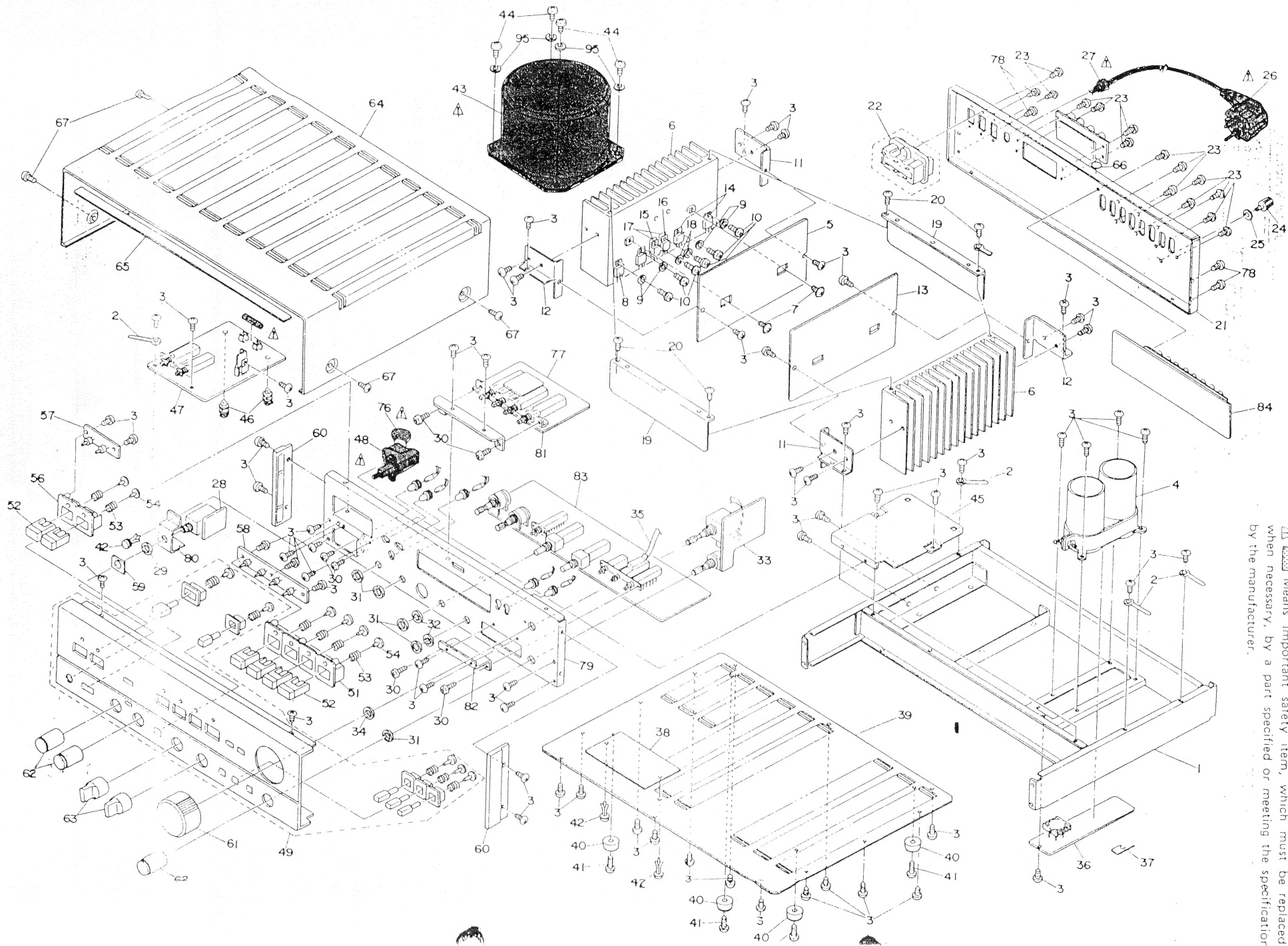


Fig. 2 How to remove

# EXPLODED VIEW OF CHASSIS AND CABINET



▲ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.



## EXPLODED VIEW OF PARTS LIST

Note: See addendum list below for the Parts with asterisk (\*) on the Ref. No. and the other Part not included in this list.  
Ref. No. in ( ) for packing parts and not appear on the exploded view.

Ref. No.	Part No.	Part Name & Descriptions
1	4110251208	MAIN CHASSIS ASS.
2	EP-4772	CORD HOLDER
3	4730354019	TAPPING SCREW (2) 3x8
4	2546027008	CHEMICON 22000 $\mu$ x2 63V
5	PUX-028-1	POWER AMP (L) UNIT
6	4170125002	POWER RADIATOR
7	4700026005	TAPPING SCREW (2) WITH WASHER 3x8
8	2710139049	TRANSISTOR 2SA1146(R)/(O)LB
9	4150175001	WASHER
10	4700012006	CROSS PAN SCREW WITH S. WASHER 3x12
11	4120729005	RADIATOR BRACKET (A)
12	4120730007	RADIATOR BRACKET (B)
13	PUX-0282	POWER AMP (R) UNIT
14	2730241043	TRANSISTOR 2SC2706(R)/(O)LB
15	2710140025	TRANSISTOR 2SA968(Y)/(O)LB110A
16	2730240028	TRANSISTOR 2SC2238(Y)/(O)LB110A
17	4150052001	INSULATING SHEET
18	4150171005	WASHER
19	4140217102	SHIELD BRACKET
20	4730353010	TAPPING SCREW (2) 3x6
*21	1050339005	BACK PANEL
22	—	—
23	—	—
24	2050071016	TERMINAL
25	4770018001	WASHER
$\Delta$ *26	2062016001	AC CORD
$\Delta$ *27	4450020005	CORD BUSH
28	ETC-392B-4	HEADPHONE UNIT
29	—	NUT 12mm SP
30	4711303018	CROSS PAN SCREW 3x6
31	—	NUT 7mm SP
32	—	TOOTH WASHER 7mm SP
33	ETC-393B-2	VR SERVO UNIT
34	—	NUT 8mm SP
35	4350051006	FLEXIBLE SLIDER
36	ETC-393B-3	POWER REC. UNIT
37	2050125001	EARTH PLATE
38	4140218004	SHIELD PLATE
39	1050336202	BOTTOM COVER
40	1048001002	FOOT
41	4730355018	TAPPING SCREW (2) 3x10
42	4770096007	PUSH RIVET
$\Delta$ *43	2335241008	POWER TRANS.

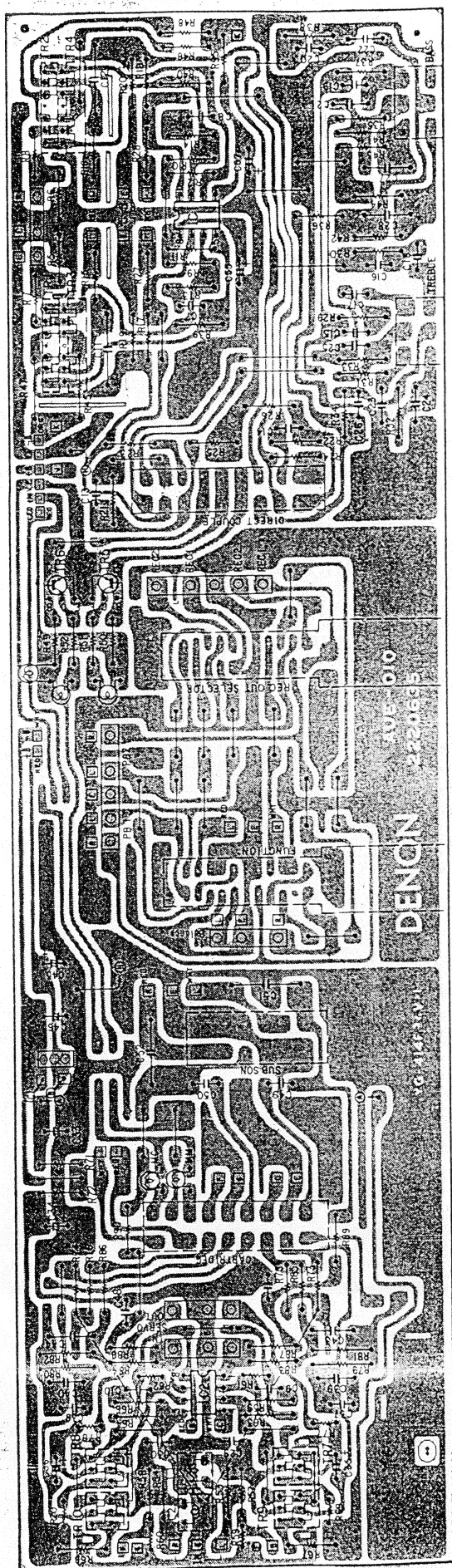
Ref. No.	Part No.	Part Name & Descriptions
44	4730455015	TAPING SCREW (2) 4x10
45	4120725106	BOARD BRACKET
46	MD-5271	P.C.B. SUPPORT
47	ETC-393B-1	POWER SUPPLY UNIT
$\Delta$ *48	2124202012	PUSH SWITCH
49	1440698107	FRONT PANEL ASS.
50	—	—
51	1140054009	PANEL BUSH
52	1130217005	PUSH KNOB ASS.
53	4630220007	SPRING
54	1190014002	STOPPER
55	1240029015	FELT SHEET (A)
56	1140055008	PANEL BUSH
57	ETC-392B6	SP LED UNIT
58	ETC-392B-7	INPUT LED UNIT
59	4610149001	RUBBER SHEET
60	1460283107	ESCUTCHEON PLATE
61	1120265106	KNOB (FOR MAIN VR)
62	1120309004	KNOB (FOR TONE & BALANCE)
63	1120308005	KNOB (FOR TAPE)
64	1020103106	TOP COVER
65	1220069011	SPACER
66	1040034006	STOPPER
67	4734801005	TAPPING SCREW (2) 4x8
(68)	5040064001	CABINET SHEET
(69)	5030253000	CUSHION
* (70)	5010647021	CARTON CASE
* (71)	5110803008	INST. MANUAL
* (72)	—	—
* (73)	—	—
* (74)	—	—
* (75)	—	—
$\Delta$ *76	2518001007	CAPACITOR 0.01 $\mu$ F 450V OIL CAPACITOR
77	ETC-392B-1	INPUT UNIT
78	4770064107	FIXING SCREW
79	4120726103	FRONT CHASSIS
80	4120727104	HEADPHONE BRACKET
81	4120724107	4P SWITCH BRACKET
82	4120726105	3P SWITCH BRACKET
83	AUE-010	EQ. CONTROL UNIT
84	ETC-392B-2	INPUT LED UNIT
*85	2061015087	FUSE (4A)
86	2048070003	5P CONNECTOR (DIN)

## ADDENDUM LIST

Ref. No.	Part Name & Descriptions	EF For France	EK For U.K	E3 For U.S.A
21	BACK PANEL	1050339102	1050339102	1050349008
$\Delta$ *26	ACCORD	2062016001	2062020000	2062019008
$\Delta$ *27	CORD BUSH	4450020005	MD-2982H	MD-3802
$\Delta$ *43	POWER TRANS.	2335241008	2335246003	2335257005
$\Delta$ *48	PUSH SWITCH	2124202012	2124202012	2124202025
70	CARTON CASE	5010647089	5010647089	5010647089
(72)	GUARANTEE CARD	5150183...	5150230000	—
(73)	IMPORTANT LABEL	—	5130372001	—
(74)	CAUTION SHEET	—	5130364006	—
(75)	FUSE LABEL	5130159185	5130159185	—
$\Delta$ *76	CAPACITOR	2518001007 OIL CAP 0.01 $\mu$ F 450V	2518001007 OIL CAP 0.01 $\mu$ F 450V	2568005121 METALIZ. ED. 0.022 $\mu$ F 150V
$\Delta$	AC SOCKET	—	—	2032052008
	3mm TOOTH WASHER	—	4753001051	—
	3T LUG	—	2050003000	—
	EARTH LABEL	—	5130140000	—
	VOLTAGE LABEL	—	5130362008	—
	S. NO. PLATE	—	—	5130398153
	4mm TOOTH WASHER	—	4753100004	—
85	FUSE (TIMELOG TYPE)	2061015087 (4A)	2061015087 (4A)	2061023095 (8A)

# PRINTED CIRCUIT BOARD PATTERNS AND PARTS LIST

## AUE-010 EQ. CONTROL UNIT

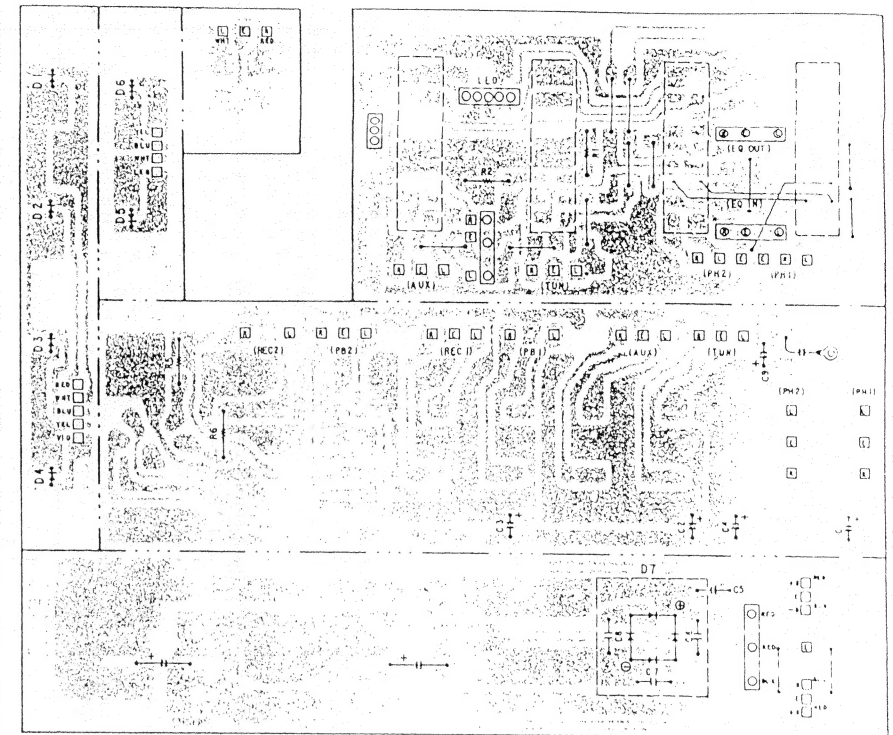


## AUE-010 PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC01	2630118001	NJM4560D	INTEGRATED CIRCUIT
IC02	2630118014	NJM4560DD	INTEGRATED CIRCUIT
TR01	2750024033	$\mu$ PA68H(M/L)	FIELD EFFECT TRANSISTOR (DUAL TYPE)
TR02	2750024033	$\mu$ PA68H(M/L)	FIELD EFFECT TRANSISTOR (DUAL TYPE)
TR03	2750024033	$\mu$ PA68H(M/L)	FIELD EFFECT TRANSISTOR (DUAL TYPE)
TR04	2750024033	$\mu$ PA68H(M/L)	FIELD EFFECT TRANSISTOR (DUAL TYPE)
TR05	2730111063	2SC1213(D)/(C)	TRANSISTOR
TR06	2730111063	2SC1213(D)/(C)	TRANSISTOR
TR07	2750029009	2SK240(BL)/V	FIELD EFFECT TRANSISTOR (DUAL TYPE)
TR08	2750029009	2SK240(BL)/V	FIELD EFFECT TRANSISTOR (DUAL TYPE)
TR09	2750029009	2SK240(BL)/V	FIELD EFFECT TRANSISTOR (DUAL TYPE)
TR10	2750029009	2SK240(BL)/V	FIELD EFFECT TRANSISTOR (DUAL TYPE)
COILS			
L01	2318017000	INDUCTOR	
L02	2318017000	INDUCTOR	
RESISTORS			
R05	2412292909	510 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R06	2412292909	510 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R07	2412219908	470 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R08	2412219908	470 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R09	2412239904	3.3 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R10	2412239904	3.3 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R11	2412239904	3.3 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R12	2412239904	3.3 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R13	2412215902	330 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R14	2412215902	330 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R15	2412275900	100 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R16	2412275900	100 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R17	2412299902	1M ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R18	2412299902	1M ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R19	2412275900	100 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R20	2412275900	100 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R21	2412252907	11 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R22	2412252907	11 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R23	2412252907	11 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R24	2412252907	11 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R25	2412227903	1 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R26	2412227903	1 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R27	2412203901	100 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R28	2412203901	100 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R29	2412245901	5.6 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R30	2412245901	5.6 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R31	2412271904	68 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R32	2412271904	68 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R33	2412236907	2.4 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R34	2412236907	2.4 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R35	2412227903	1 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R36	2412227903	1 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R37	2412262900	30 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R38	2412262900	30 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R39	2412215902	330 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R40	2412215902	330 ohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R41	2412279906	150 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	
R42	2412279906	150 kohm $\pm 5\%$ $\frac{1}{4}$ W FIXED CARBON FILM	

## ETC-392B INPUT SW LED UNIT

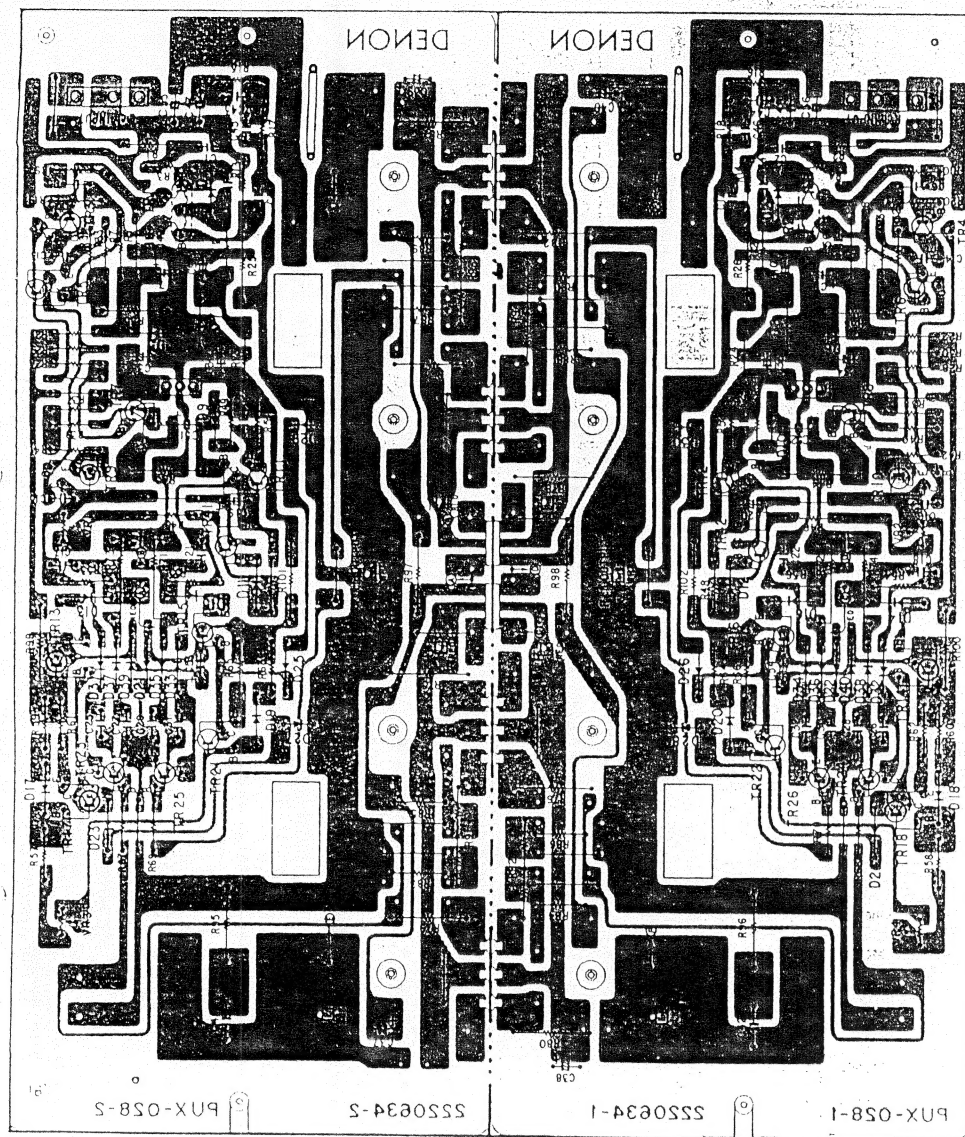
Ref. No.	Part No.	Part Name & Descriptions	Ref. No.	Part No.	Part Name & Descriptions
R43	2412245901	5.6 kohm ±5% 1/4W FIXED CARBON FILM	C16	2521030007	68 pF ±10% 100V FIXED MICA FILM
R44	2412245901	5.6 kohm ±5% 1/4W FIXED CARBON FILM	C17	2554149004	0.0015 μF ±5% 50V FIXED PLASTIC FILM
R45	2412108006	4.7 kohm ±5% 1/4W FIXED CARBON FILM	C18	2554149004	0.0015 μF ±5% 50V FIXED PLASTIC FILM
R46	2412243903	4.7 kohm ±5% 1/4W FIXED CARBON FILM	C19	2521017004	20 pF ±5% 50V FIXED MICA FILM
R47	2412108006	4.7 kohm ±5% 1/4W FIXED CARBON FILM	C20	2521017004	20 pF ±5% 50V FIXED MICA FILM
R48	2412243903	4.7 kohm ±5% 1/4W FIXED CARBON FILM	C21	2554171001	0.012 μF ±5% 50V FIXED PLASTIC FILM
R49	2412248908	7.5 kohm ±5% 1/4W FIXED CARBON FILM	C22	2554171001	0.012 μF ±5% 50V FIXED PLASTIC FILM
R50	2412255904	15 kohm ±5% 1/4W FIXED CARBON FILM	C23	2554171001	0.012 μF ±5% 50V FIXED PLASTIC FILM
R51	2412179909	100 ohm ±5% 1/4W FIXED CARBON FILM	C24	2554171001	0.012 μF ±5% 50V FIXED PLASTIC FILM
R52	2412171907	4.7 ohm ±5% 1/4W FIXED CARBON FILM	C25	2521014007	15 pF ±5% 50V FIXED MICA FILM
R53	2412211906	220 ohm ±5% 1/4W FIXED CARBON FILM	C26	2521014007	15 pF ±5% 50V FIXED MICA FILM
R54	2412211906	220 ohm ±5% 1/4W FIXED CARBON FILM	C27	2554191007	0.082 μF ±5% 50V FIXED PLASTIC FILM
R57	2412203901	100 ohm ±5% 1/4W FIXED CARBON FILM	C28	2554191007	0.082 μF ±5% 50V FIXED PLASTIC FILM
R58	2412203901	100 ohm ±5% 1/4W FIXED CARBON FILM	C29	2554123004	120 pF ±5% 50V FIXED PLASTIC FILM
R59	2412029091	51 kohm ±5% 1/4W FIXED CARBON FILM	C30	2554123004	120 pF ±5% 50V FIXED PLASTIC FILM
R60	2412029091	51 kohm ±5% 1/4W FIXED CARBON FILM	C33	2544011003	220 μF ±10% 10V FIXED ELECTROLYTIC
R61	2412020003	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C34	2544011003	220 μF ±10% 10V FIXED ELECTROLYTIC
R62	2412020003	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C35	2541035008	1 μF ±5% 35V FIXED TANTALUM SOLID
R63	2412231902	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C36	2541035008	1 μF ±5% 35V FIXED TANTALUM SOLID
R64	2412231902	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C37	2554145008	0.001 μF ±5% 50V FIXED PLASTIC FILM
R65	2412211906	220 ohm ±5% 1/4W FIXED CARBON FILM	C38	2554145008	0.001 μF ±5% 50V FIXED PLASTIC FILM
R66	2412211906	220 ohm ±5% 1/4W FIXED CARBON FILM	C39	2554085016	0.18 μF ±2% 50V FIXED PLASTIC FILM
R67	2412231902	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C40	2554085016	0.18 μF ±2% 50V FIXED PLASTIC FILM
R68	2412231902	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C41	2554131009	270 pF ±5% 50V FIXED PLASTIC FILM
R69	2412020003	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C42	2554131009	270 pF ±5% 50V FIXED PLASTIC FILM
R70	2412020003	1.5 kohm ±5% 1/4W FIXED CARBON FILM	C43	2554085032	0.068 μF ±2% 50V FIXED PLASTIC FILM
R71	2412085006	510 ohm ±5% 1/4W FIXED CARBON FILM	C44	2554085032	0.068 μF ±2% 50V FIXED PLASTIC FILM
R72	2412085006	510 ohm ±5% 1/4W FIXED CARBON FILM	C45	2544017007	47 μF ±5% 16V FIXED ELECTROLYTIC
R73	2412202902	91 ohm ±5% 1/4W FIXED CARBON FILM	C46	2544017007	47 μF ±5% 16V FIXED ELECTROLYTIC
R74	2412202902	91 ohm ±5% 1/4W FIXED CARBON FILM	C47	2554161008	0.0047 μF ±5% 50V FIXED PLASTIC FILM
R75	2412171907	4.7 ohm ±5% 1/4W FIXED CARBON FILM	C48	2554161008	0.0047 μF ±5% 50V FIXED PLASTIC FILM
R76	2412171907	4.7 ohm ±5% 1/4W FIXED CARBON FILM	C49	2554165004	0.0068 μF ±5% 50V FIXED PLASTIC FILM
R77	2412312009	2.7M ohm ±5% 1/4W FIXED CARBON FILM	C50	2554165004	0.0068 μF ±5% 50V FIXED PLASTIC FILM
R78	2412312009	2.7M ohm ±5% 1/4W FIXED CARBON FILM	C51	2554082048	0.18 μF ±5% 100V FIXED PLASTIC FILM
R79	2412018002	3.9 kohm ±2% 1/4W FIXED CARBON FILM	C52	2554082048	0.18 μF ±5% 100V FIXED PLASTIC FILM
R80	2412018002	3.9 kohm ±2% 1/4W FIXED CARBON FILM	C55	2544015009	10 μF ±5% 16V FIXED ELECTROLYTIC
R81	2412032091	47 kohm ±2% 1/4W FIXED CARBON FILM	C57	2544015009	10 μF ±5% 16V FIXED ELECTROLYTIC
R82	2412032091	47 kohm ±2% 1/4W FIXED CARBON FILM			
R83	2412186905	20 ohm ±5% 1/4W FIXED CARBON FILM			
R84	2412186905	20 ohm ±5% 1/4W FIXED CARBON FILM			
R85	2412290901	430 kohm ±5% 1/4W FIXED CARBON FILM			
R86	2412290901	430 kohm ±5% 1/4W FIXED CARBON FILM			
R87	2412203901	100 ohm ±5% 1/4W FIXED CARBON FILM			
R88	2412203901	100 ohm ±5% 1/4W FIXED CARBON FILM			
R89	2412203901	100 ohm ±5% 1/4W FIXED CARBON FILM			
R90	2412203901	100 ohm ±5% 1/4W FIXED CARBON FILM			
R95	2412239908	2.2 kohm ±5% 1/4W FIXED CARBON FILM			
CAPACITORS			OTHER PARTS		
C07	2554137003	470 pF ±5% 50V FIXED PLASTIC FILM			
C08	2554137003	470 pF ±5% 50V FIXED PLASTIC FILM			
C09	2554137003	470 pF ±5% 50V FIXED PLASTIC FILM			
C10	2554137003	470 pF ±5% 50V FIXED PLASTIC FILM			
C11	2561008060	1 μF ±10% 100V FIXED METALIZED			
C12	2561008060	1 μF ±10% 100V FIXED METALIZED			
C13	2521026008	47 pF ±10% 100V FIXED MICA FILM			
C14	2521026008	47 pF ±10% 100V FIXED MICA FILM			
C15	2521030007	68 pF ±10% 100V FIXED MICA FILM			



## ETC-392B PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions	Ref. No.	Part No.	Part Name & Descriptions
SEMICONDUCTORS			OTHER PARTS		
D01	3939040002	LED TLG206 IGREEN	C08	2554084017	0.01 μF ±5% 50V FIXED PLASTIC FILM
D02	3939040002	LED TLG206 IGREEN	C09	2544043000	0.47 μF ±5% 50V FIXED ELECTROLYTIC
D03	3939040002	LED TLG206 IGREEN			
D04	3939040002	LED TLG206 IGREEN			
D05	3939040002	LED TLG206 IGREEN			
D06	3939040002	LED TLG206 IGREEN			
D07	2760233005	M4C51 DIODE			
RESISTORS					
R01	2412068007	100 ohm ±5% 1/4W FIXED CARBON FILM			
R02	2412068007	100 ohm ±5% 1/4W FIXED CARBON FILM			
R05	2412156003	470 kohm ±5% 1/4W FIXED CARBON FILM			
R05	2412156003	470 kohm ±5% 1/4W FIXED CARBON FILM			
CAPACITORS					
C01	2544043000	0.47 μF ±5% 50V FIXED ELECTROLYTIC			
C02	2544043000	0.47 μF ±5% 50V FIXED ELECTROLYTIC			
C03	2544043000	0.47 μF ±5% 50V FIXED ELECTROLYTIC			
C04	2544043000	0.47 μF ±5% 50V FIXED ELECTROLYTIC			
C05	2554084017	0.01 μF ±5% 50V FIXED PLASTIC FILM			
C06	2554084017	0.01 μF ±5% 50V FIXED PLASTIC FILM			
C07	2554084017	0.01 μF ±5% 50V FIXED PLASTIC FILM			





PUX-028 PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
TR01	2730181019	2SC1583(G)/(F)	TRANSISTOR
TR02	2730181019	2SC1583(G)/(F)	TRANSISTOR
TR03	2730198002	2SC1815(Y)	TRANSISTOR
TR04	2730198002	2SC1815(Y)	TRANSISTOR
TR05	2730198002	2SC1815(Y)	TRANSISTOR
TR06	2730198002	2SC1815(Y)	TRANSISTOR
TR07	2710110000	2SA916(L)	TRANSISTOR
TR08	2710110000	2SA916(L)	TRANSISTOR
TR09	2710110000	2SA916(L)	TRANSISTOR
TR10	2710110000	2SA916(L)	TRANSISTOR
TR11	2730205005	2SC1941(L)	TRANSISTOR
TR12	2730205005	2SC1941(L)	TRANSISTOR
TR13	2730198002	2SC1815(Y)	TRANSISTOR
TR14	2730198002	2SC1815(Y)	TRANSISTOR

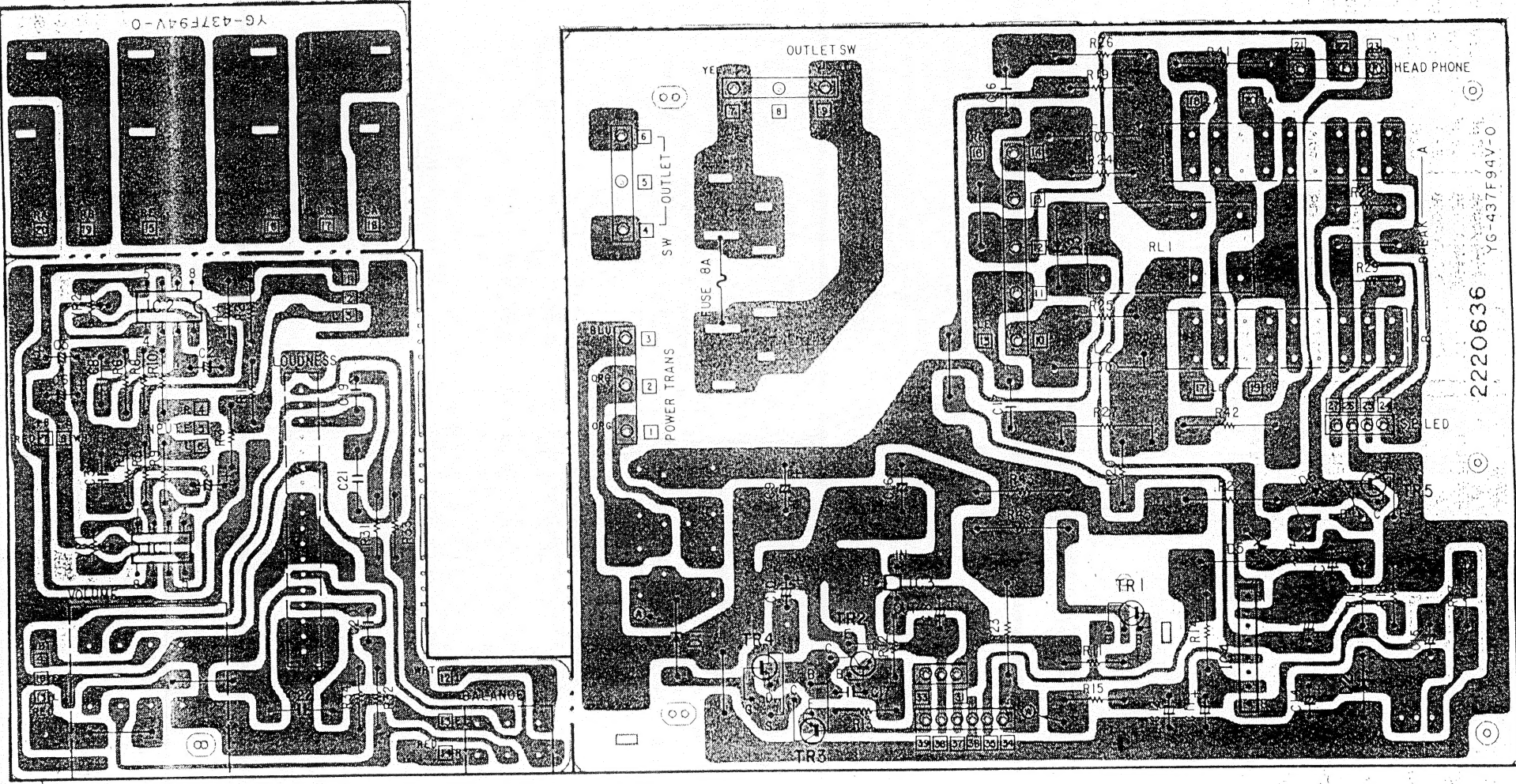
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Ref. No.	Part No.	Part Name & Descriptions	
TR15	2710102005	2SA1015(Y)	TRANSISTOR
TR16	2710102005	2SA1015(Y)	TRANSISTOR
TR17	2710102005	2SA1015(Y)	TRANSISTOR
TR18	2710102005	2SA1015(Y)	TRANSISTOR
TR21	2730198002	2SC1815(Y)	TRANSISTOR
TR22	2730198002	2SC1815(Y)	TRANSISTOR
TR23	2730111063	2SC1213(D)/(C)	TRANSISTOR
TR24	2730111063	2SC1213(D)/(C)	TRANSISTOR
TR25	2710040073	2SA673A(D)/(C)	TRANSISTOR
TR26	2710040073	2SA673A(D)/(C)	TRANSISTOR
TR41	2730198015	2SC1815(BL)	TRANSISTOR
TR42	2730198015	2SC1815(BL)	TRANSISTOR
D01	2760049008	1S2076	DIODE
D02	2760049008	1S2076	DIODE
D05	2760220018	HZ24-1	DIODE
D06	2760220018	HZ24-1	DIODE
D07	2760220018	HZ24-1	DIODE
D08	2760220018	HZ24-1	DIODE
D09	2760171028	HV-23(YL)	DIODE
D10	2760171028	HV-23(YL)	DIODE
D11	2760171028	HV-23(YL)	DIODE
D12	2760171028	HV-23(YL)	DIODE
D13	2760049011	1S2076A	DIODE
D14	2760049011	1S2076A	DIODE
D15	2760049011	1S2076A	DIODE
D16	2760049011	1S2076A	DIODE
D17	2760049008	1S2076	DIODE
D18	2760049008	1S2076	DIODE
D19	2760049008	1S2076	DIODE
D20	2760049008	1S2076	DIODE
D21	2760254000	HZ7B-3	DIODE
D22	2760254000	HZ7B-3	DIODE
D23	2760049008	1S2076	DIODE
D24	2760049008	1S2076	DIODE
D25	2760049008	1S2076	DIODE
D26	2760049008	1S2076	DIODE
D27	2760132041	STV-3H(G)	DIODE
D28	2760132041	STV-3H(G)	DIODE
D29	2760132041	STV-3H(G)	DIODE
D30	2760132041	STV-3H(G)	DIODE
D31	2760049011	1S2076A	DIODE
D32	2760049011	1S2076A	DIODE
D33	2760049011	1S2076A	DIODE
D34	2760049011	1S2076A	DIODE
D35	2760049011	1S2076A	DIODE
D36	2760049011	1S2076A	DIODE
D37	2760049011	1S2076A	DIODE
D38	2760049011	1S2076A	DIODE
D39	2760254000	HZ7B-3	DIODE
D40	2760254000	HZ7B-3	DIODE
RESISTORS			
R01	2412209905	180 ohm ±5% ¼W FIXED CARBON FILM	
R02	2412209905	180 ohm ±5% ¼W FIXED CARBON FILM	
R03	2412201903	82 ohm ±5% ¼W FIXED CARBON FILM	
R04	2412201903	82 ohm ±5% ¼W FIXED CARBON FILM	
R05	2412012095	2.2 kohm ±2% ¼W FIXED CARBON FILM	
R06	2412012095	2.2 kohm ±2% ¼W FIXED CARBON FILM	
R07	2412012095	2.2 kohm ±2% ¼W FIXED CARBON FILM	
R08	2412012095	2.2 kohm ±2% ¼W FIXED CARBON FILM	
R09	2412201903	82 ohm ±5% ¼W FIXED CARBON FILM	
R10	2412201903	82 ohm ±5% ¼W FIXED CARBON FILM	
R11	2412253906	12 kohm ±5% ¼W FIXED CARBON FILM	
R12	2412253906	12 kohm ±5% ¼W FIXED CARBON FILM	
R13	2442022026	390 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R14	2442022026	390 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R15	2420203003	10M ohm ±10% ¼W FIXED CARBON COMPOSIT	
R16	2420203003	10M ohm ±10% ¼W FIXED CARBON COMPOSIT	
R17	2420203003	10M ohm ±10% ¼W FIXED CARBON COMPOSIT	
R18	2420203003	10M ohm ±10% ¼W FIXED CARBON COMPOSIT	
R19	2412211906	220 ohm ±5% ¼W FIXED CARBON FILM	
R20	2412211906	220 ohm ±5% ¼W FIXED CARBON FILM	
R21	2412248908	7.5 kohm ±5% ¼W FIXED CARBON FILM	
R22	2412248908	7.5 kohm ±5% ¼W FIXED CARBON FILM	
R23	2412248908	7.5 kohm ±5% ¼W FIXED CARBON FILM	
R24	2412248908	7.5 kohm ±5% ¼W FIXED CARBON FILM	
R25	2440053026	10 kohm ±5% 1W FIXED METAL OXIDE FILM	
R26	2440053026	10 kohm ±5% 1W FIXED METAL OXIDE FILM	
R27	2442007012	330 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R28	2442007012	330 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R29	2442007012	330 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R30	2442007012	330 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R31	2412195909	47 ohm ±5% ¼W FIXED CARBON FILM	
R32	2412195909	47 ohm ±5% ¼W FIXED CARBON FILM	
R33	2412195909	47 ohm ±5% ¼W FIXED CARBON FILM	
R34	2412195909	47 ohm ±5% ¼W FIXED CARBON FILM	
R35	2410193000	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R36	2410193000	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R37	2442022013	51 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R38	2442022013	51 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R39	2412179909	10 ohm ±5% ¼W FIXED CARBON FILM	
R40	2412179909	10 ohm ±5% ¼W FIXED CARBON FILM	
R41	2412179909	10 ohm ±5% ¼W FIXED CARBON FILM	
R42	2412179909	10 ohm ±5% ¼W FIXED CARBON FILM	
R43	2440070029	5.6 kohm ±5% 1W FIXED METAL OXIDE FILM	
R44	2440070029	5.6 kohm ±5% 1W FIXED METAL OXIDE FILM	
R45	2412235908	2.2 kohm ±5% 1W FIXED CARBON FILM	
R46	2412235908	2.2 kohm ±5% 1W FIXED CARBON FILM	
R47	2412235908	2.2 kohm ±5% 1W FIXED CARBON FILM	
R48	2412235908	2.2 kohm ±5% 1W FIXED CARBON FILM	
R49	2412203901	100 ohm ±5% ¼W FIXED CARBON FILM	
R50	2412203901	100 ohm ±5% ¼W FIXED CARBON FILM	
R51	2412203901	100 ohm ±5% ¼W FIXED CARBON FILM	
R52	2412203901	100 ohm ±5% ¼W FIXED CARBON FILM	
R53	2442022000	1 kohm ±5% ¼W FIXED METAL OXIDE FILM	
R54	2442022000	1 kohm ±5% ¼W FIXED METAL OXIDE FILM	
R55	2442022000	1 kohm ±5% ¼W FIXED METAL OXIDE FILM	
R56	2442022000	1 kohm ±5% ¼W FIXED METAL OXIDE FILM	
R57	2412203901	100 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R58	2412203901	100 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R59	2412235908	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R60	2412235908	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R61	2412211906	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R62	2412211906	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R63	2412235908	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R64	2412235908	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R65	2412211906	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R66	2412211906	2.2 kohm ±5% ¼W FIXED CARBON FILM	
R67	2442007067	120 ohm ±5% ¼W FIXED METAL OXIDE FILM	
R68	2442007067	120 ohm ±5% ¼W FIXED METAL OXIDE FILM	

(Cont.)

Ref. No.	Part No.	Part Name & Descriptions	Ref. No.	Part No.	Part Name & Descriptions
R69	2442007067	120 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED METAL OXIDE FILM	C09	2544035005	10 $\mu F$ 35V FIXED ELECTROLYTIC
R70	2442007067	120 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED METAL OXIDE FILM	C10	2544035005	10 $\mu F$ 35V FIXED ELECTROLYTIC
R71	2440041025	1 kohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C11	2521008000	8 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R72	2440041025	1 kohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C12	2521008000	8 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R73	2440041025	1 kohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C13	2521018003	22 pF $\pm 5\%$ 50V FIXED MICA FILM
R74	2440041025	1 kohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C14	2521018003	22 pF $\pm 5\%$ 50V FIXED MICA FILM
R75	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C15	2521081001	7 pF $\pm 0.5$ pF 500V FIXED MICA FILM
R76	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C16	2521081001	7 pF $\pm 0.5$ pF 500V FIXED MICA FILM
R77	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C17	2554129008	220 pF $\pm 5\%$ 50V FIXED PLASTIC FILM
R78	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C18	2554129008	220 pF $\pm 5\%$ 50V FIXED PLASTIC FILM
R79	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C19	2544060025	1 $\mu F$ 100V FIXED ELECTROLYTIC
R80	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C20	2544060025	1 $\mu F$ 100V FIXED ELECTROLYTIC
R81	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C21	2554129008	220 pF $\pm 5\%$ 50V FIXED PLASTIC FILM
R82	2440013024	4.7 ohm $\pm 5\%$ 1W FIXED METAL OXIDE FILM	C22	2554129008	220 pF $\pm 5\%$ 50V FIXED PLASTIC FILM
R83	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C23	2554121006	100 pF $\pm 5\%$ 50V FIXED PLASTIC FILM
R84	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C24	2554121006	100 pF $\pm 5\%$ 50V FIXED PLASTIC FILM
R85	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C25	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R86	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C26	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R87	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C27	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R88	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C28	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R89	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C29	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R90	2412191903	33 ohm $\pm 5\%$ $\frac{1}{4}W$ FIXED CARBON FILM	C30	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R91	2432026003	0.47 ohm $\pm 10\%$ 3.15W FIXED WIRE WOUND	C31	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R92	2432026003	0.47 ohm $\pm 10\%$ 3.15W FIXED WIRE WOUND	C32	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R93	2432026003	0.47 ohm $\pm 10\%$ 3.15W FIXED WIRE WOUND	C33	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R94	2432026003	0.47 ohm $\pm 10\%$ 3.15W FIXED WIRE WOUND	C34	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R95	2440022028	27 ohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C35	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R96	2440022028	27 ohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C36	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R97	2440029021	100 ohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C37	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R98	2440029021	100 ohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C38	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R99	2440051026	6.8 kohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C39	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R100	2440051026	6.8 kohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C40	2544059036	4.7 $\mu F$ 63V FIXED ELECTROLYTIC
R101	2440051026	6.8 kohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C41	2554169000	0.01 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
R102	2440051026	6.8 kohm $\pm 10\%$ 1W FIXED METAL OXIDE FILM	C42	2554169000	0.01 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM
CAPACITORS			C43	2521005003	5 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R01	2554121006	100 pF $\pm 5\%$ 50V FIXED PLASTIC FILM	C44	2521005003	5 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R02	2554121006	100 pF $\pm 5\%$ 50V FIXED PLASTIC FILM	C45	2521081014	1 pF $\pm 0.5$ pF 500V FIXED MICA FILM
R03	2554145008	0.001 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM	C46	2521081014	1 pF $\pm 0.5$ pF 500V FIXED MICA FILM
R04	2554145008	0.001 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM	C47	2521014007	15 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R05	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM	C48	2521014007	15 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R06	2554161008	0.0047 $\mu F$ $\pm 5\%$ 50V FIXED PLASTIC FILM	C49	2521010001	10 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R07	2544035005	10 $\mu F$ 35V FIXED ELECTROLYTIC	C50	2521010001	10 pF $\pm 0.5$ pF 50V FIXED MICA FILM
R08	2544035005	10 $\mu F$ 35V FIXED ELECTROLYTIC	C51	2544060025	1 $\mu F$ 100V FIXED ELECTROLYTIC
			C52	2544060025	1 $\mu F$ 100V FIXED ELECTROLYTIC
			C53	2544044009	1 $\mu F$ 50V FIXED ELECTROLYTIC
			C54	2544044009	1 $\mu F$ 50V FIXED ELECTROLYTIC
			C55	2544044009	1 $\mu F$ 50V FIXED ELECTROLYTIC
			C56	2544044009	1 $\mu F$ 50V FIXED ELECTROLYTIC
OTHER PARTS					
			VR01	2220634005	P.W. BOARD
			VR02	2090042908	0.6 JUMPER WIRE USED 16
			VR03	2090008117	JUMPER SHORT LEAD P=12.5mm USED 8
			VR04	2050075025	2P. TERMINAL USED 2
				2050122033	3P. CONNECTOR PIN ASS.
				2035622008	3P. CONNECTOR BASE
				2116014014	SEMI FIXED RESISTOR 1 kohm
				2116014014	SEMI FIXED RESISTOR 1 kohm
				2116014030	SEMI FIXED RESISTOR 100 kohm
				2116014030	SEMI FIXED RESISTOR 100 kohm
				2030200030	1P. CONTACT (D) ASS FOR EAR TH
				2030208016	1P. CONTACT (D) ASS FOR Ld-B
				2030208029	1P. CONTACT (D) ASS FOR Rd-B
				2030207017	1P. CONTACT (D) ASS FOR Ld+B
				2030207020	1P. CONTACT (D) ASS FOR Rd+B
				2030207033	1P. CONTACT (D) ASS FOR Rdout
				2030199015	1P. CONTACT (D) ASS FOR Ldout



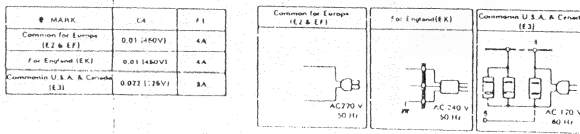





# ETC-393B PARTS LIST

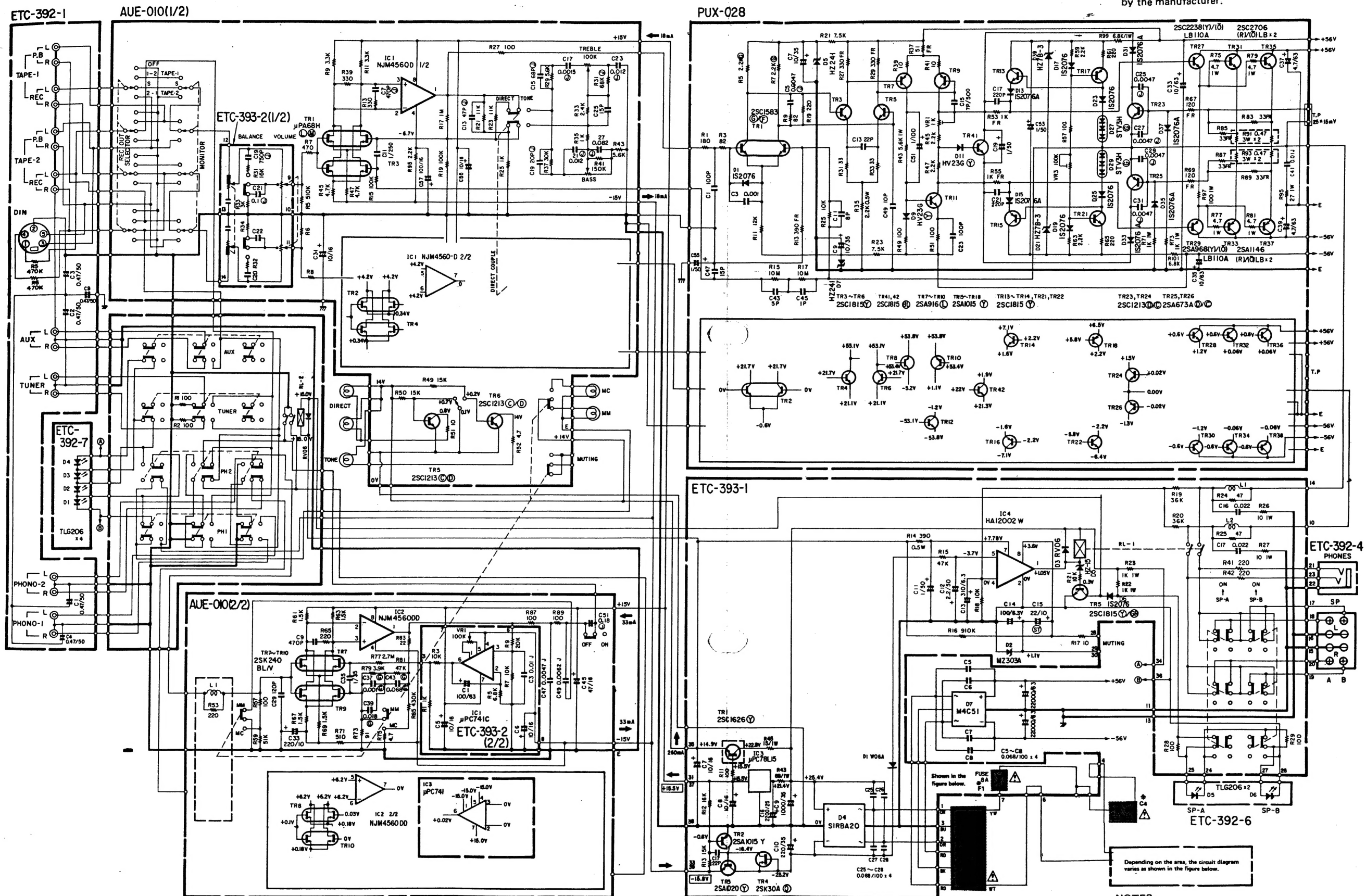
Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC01	2630133002	μPC741C	INTEGRATED CIRCUIT
IC02	2630133002	μPC741C	INTEGRATED CIRCUIT
IC03	2630138007	μPC78L15A	INTEGRATED CIRCUIT
IC04	2630102004	HA12002W	INTEGRATED CIRCUIT
TR01	2730177007	2SC1626(Y)	TRANSISTOR
TR02	2710102005	2SA1015(Y)	TRANSISTOR
TR03	2710117003	2SA1020(Y)	TRANSISTOR
TR04	2750018009	2SK30A(D)	FOR FIELD EFFECT TRANSISTOR
TR05	2730198044	2SC1815(Y)/(R)	FOR FIELD EFFECT TRANSISTOR
D01	2760158	W06A	DIODE
D02	2760244007	MZ230	DIODE
D03	2760237001	RV06	DIODE
D04	2760239009	S1RBA20F	DIODE
RESISTORS			
R01	2412229903	1 kohm	±5% ¼W FIXED CARBON FILM
R02	2412229903	1 kohm	±5% ¼W FIXED CARBON FILM
R03	2412251908	10 kohm	±5% ¼W FIXED CARBON FILM
R04	2412251908	10 kohm	±5% ¼W FIXED CARBON FILM
R05	2412247909	6.8 kohm	±5% ¼W FIXED CARBON FILM
R06	2412247909	6.8 kohm	±5% ¼W FIXED CARBON FILM
R07	2412251908	10 kohm	±5% ¼W FIXED CARBON FILM
R08	2412251908	10 kohm	±5% ¼W FIXED CARBON FILM
R09	2412258901	20 kohm	±5% ¼W FIXED CARBON FILM
R10	2412258901	20 kohm	±5% ¼W FIXED CARBON FILM
R11	2412203901	100 ohm	±5% ¼W FIXED CARBON FILM
R12	2412256903	16 kohm	±5% ¼W FIXED CARBON FILM
R13	2412255904	15 kohm	±5% ¼W FIXED CARBON FILM
R14	2410175002	390 ohm	±5% ¼W FIXED CARBON FILM
R15	2412242903	4.7 kohm	±5% ¼W FIXED CARBON FILM
R16	2412298903	910 kohm	±5% ¼W FIXED CARBON FILM
R17	2412179909	100 ohm	±5% ¼W FIXED CARBON FILM
R18	2412251908	10 kohm	±5% ¼W FIXED CARBON FILM
R19	2412264908	36 kohm	±5% ¼W FIXED CARBON FILM
R20	2412264908	36 kohm	±5% ¼W FIXED CARBON FILM
R21	2412275900	100 kohm	±5% ¼W FIXED CARBON FILM
R22	2440041025	1 kohm	±5% 1W FIXED CARBON FILM FIXED METAL OXIDE FILM
R23	2440041025	1 kohm	±5% 1W FIXED METAL OXIDE FILM
R24	2412195909	47 ohm	±5% ¼W FIXED CARBON FILM
R25	2412195909	47 ohm	±5% ¼W FIXED CARBON FILM
R26	2440017020	10 ohm	±5% 1W FIXED METAL OXIDE FILM
R27	2440017020	10 ohm	±5% 1W FIXED METAL OXIDE FILM
R28	2412203901	100 ohm	±5% ¼W FIXED CARBON FILM
R29	2412203901	100 ohm	±5% ¼W FIXED CARBON FILM
R31	2412255904	15 kohm	±5% ¼W FIXED CARBON FILM
R32	2412255904	15 kohm	±5% ¼W FIXED CARBON FILM
R33	2412238905	3 kohm	±5% ¼W FIXED CARBON FILM
R34	2412238905	3 kohm	±5% ¼W FIXED CARBON FILM
R41	2440033020	220 ohm	±5% 1W FIXED METAL OXIDE FILM
R42	2440033020	220 ohm	±5% 1W FIXED METAL OXIDE FILM
R43	2440027023	68 ohm	±5% 1W FIXED METAL OXIDE FILM
R45	2440017020	10 ohm	±5% 1W FIXED METAL OXIDE FILM

Ref. No.	Part No.	Part Name & Descriptions	
CAPACITORS			
C01	2544003008	100 $\mu$ F	6.3V FIXED ELECTROLYTIC
C02	2544003008	100 $\mu$ F	6.3V FIXED ELECTROLYTIC
C03	2554169000	0.01 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
C04	2554169000	0.01 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
C05	2544015009	10 $\mu$ F	16V FIXED ELECTROLYTIC
C06	2544015009	10 $\mu$ F	16V FIXED ELECTROLYTIC
C07	2544015009	10 $\mu$ F	16V FIXED ELECTROLYTIC
C08	2544015009	10 $\mu$ F	16V FIXED ELECTROLYTIC
C09	2544042001	1000 $\mu$ F	35V FIXED ELECTROLYTIC
C10	2544039001	220 $\mu$ F	35V FIXED ELECTROLYTIC
C11	2544044009	1 $\mu$ F	50V FIXED ELECTROLYTIC
C12	2544066003	2.2 $\mu$ F	50V FIXED ELECTROLYTIC
C13	2544005006	330 $\mu$ F	6.3V FIXED ELECTROLYTIC
C14	2549015004	22 $\mu$ F $\pm 10\%$	10V FIXED ELECTROLYTIC
C15	2549015004	22 $\mu$ F $\pm 10\%$	10V FIXED ELECTROLYTIC
C16	2554177005	0.022 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
C16	2544079016	2200 $\mu$ F	25V FIXED ELECTROLYTIC
C17	2554177005	0.022 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
C17	2521018003	22 pF	$\pm 5\%$ 50V FIXED MICA FILM
C19	2554142001	0.01 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
C20	2554142001	0.01 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
C21	2554193005	0.1 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
C22	2554193005	0.1 $\mu$ F	$\pm 5\%$ 50V FIXED PLASTIC FILM
OTHER PARTS			
	2220636003	P.W. BOARD	
	2090042908	0.6 JUMPER WIRE USED 7	
	2050070004	8P. TERMINAL FOR SPEAKER	
	2124242001	SLIDE SWITCH (REMOTE) FOR LOUDNESS	
VR01	2116014030	SEMI FIXED RESISTOR 100 kohm	
VR02	2116014030	SEMI FIXED RESISTOR 100 kohm	
L01	2320017001	INDUCTOR	
L02	2320017001	INDUCTOR	
RL01	2140041008	RELAY	
	2020014003	FUSE CLIP	
	EP-5667H1	TERMINAL FOR WRAPPING PIN USED 1	
	2050087039	3P TERMINAL	
	2050087055	5P TERMINAL	
	2050122033	3P CONNECTOR PIN ASS.	
	2055622008	3P CONNECTOR BASE	
	2035622024	4P MINI CONNECTOR PIN	
	2035622082	6P CONNECTOR BASE	
VR	2110257000	VARIABLE RESISTOR 50 kohm FOR MAIN VR	
VR	2110256001	VARIABLE RESISTOR 100 kohm FOR BALANCE	
SW	2124243000	2P PUSH SWITCH FOR SPEAKER SWITCH	
	2034146006	3P CONNECTOR CORD FOR +, - B	
	2034149003	3P CONNECTOR CORD FOR BALANCE IN	
	2034149029	3P CONNECTOR CORD FOR VOLUME OUT	
	2034151004	3P CONNECTOR CORD FOR SERVO OUT IN	
	4170021009	RADIATOR	
	4730354019	TAPPING SCREW 3x8 FOR TR01 FIXED	
	5130159185	FUSE LABEL	
	4730354019	TAPPING SCREW 3x8 FOR RADIATOR FINE D	

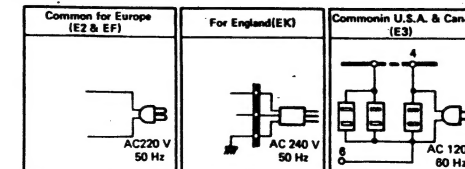


# WIRING DIAGRAM

 Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.



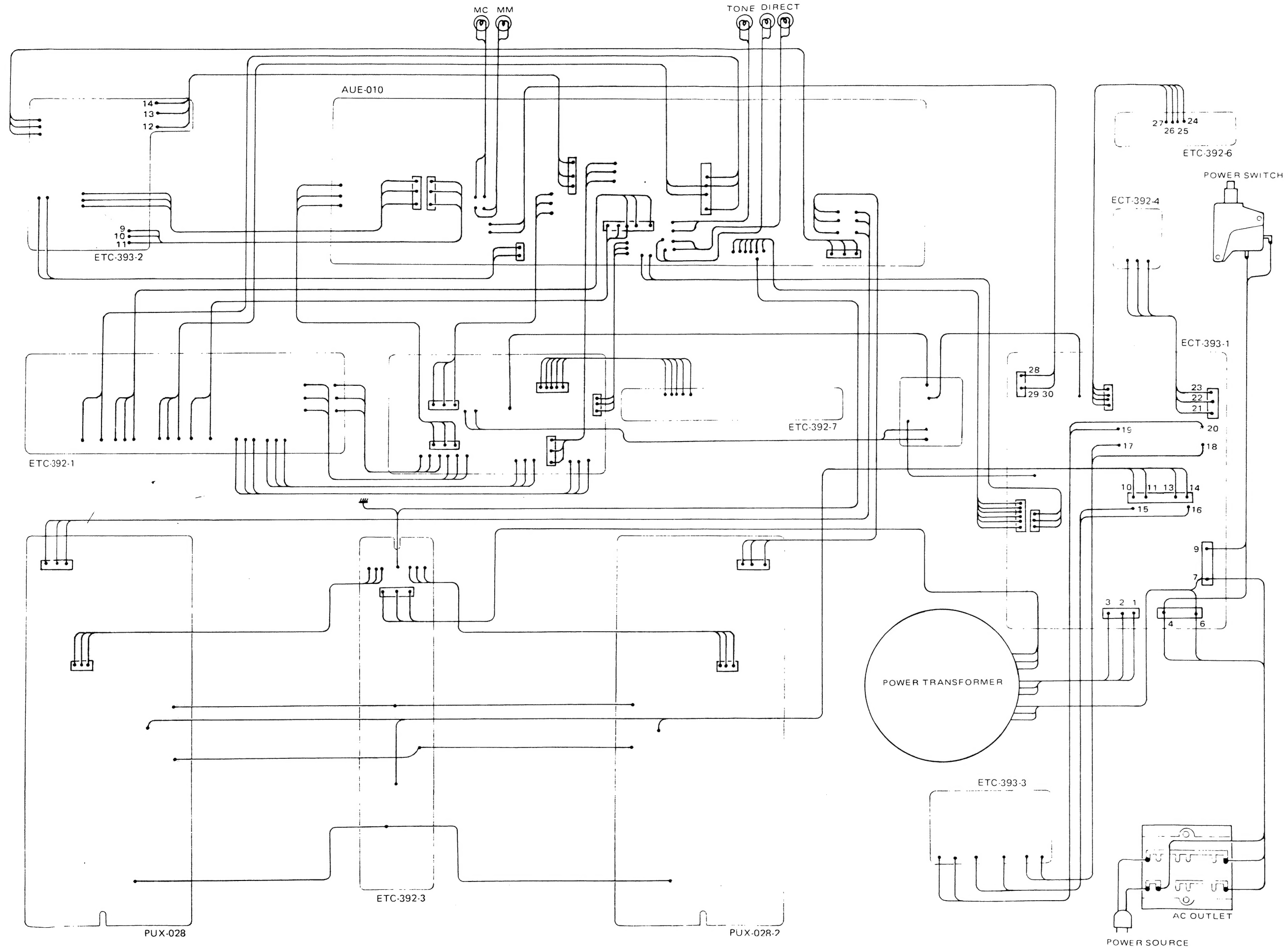
MARK	C4	F1
Common for Europe (E2 & EF)	0.01 (450V)	4A
For England (EK)	0.01 (450V)	4A
Common for U.S.A. & Canada (E3)	0.022 (125V)	8A



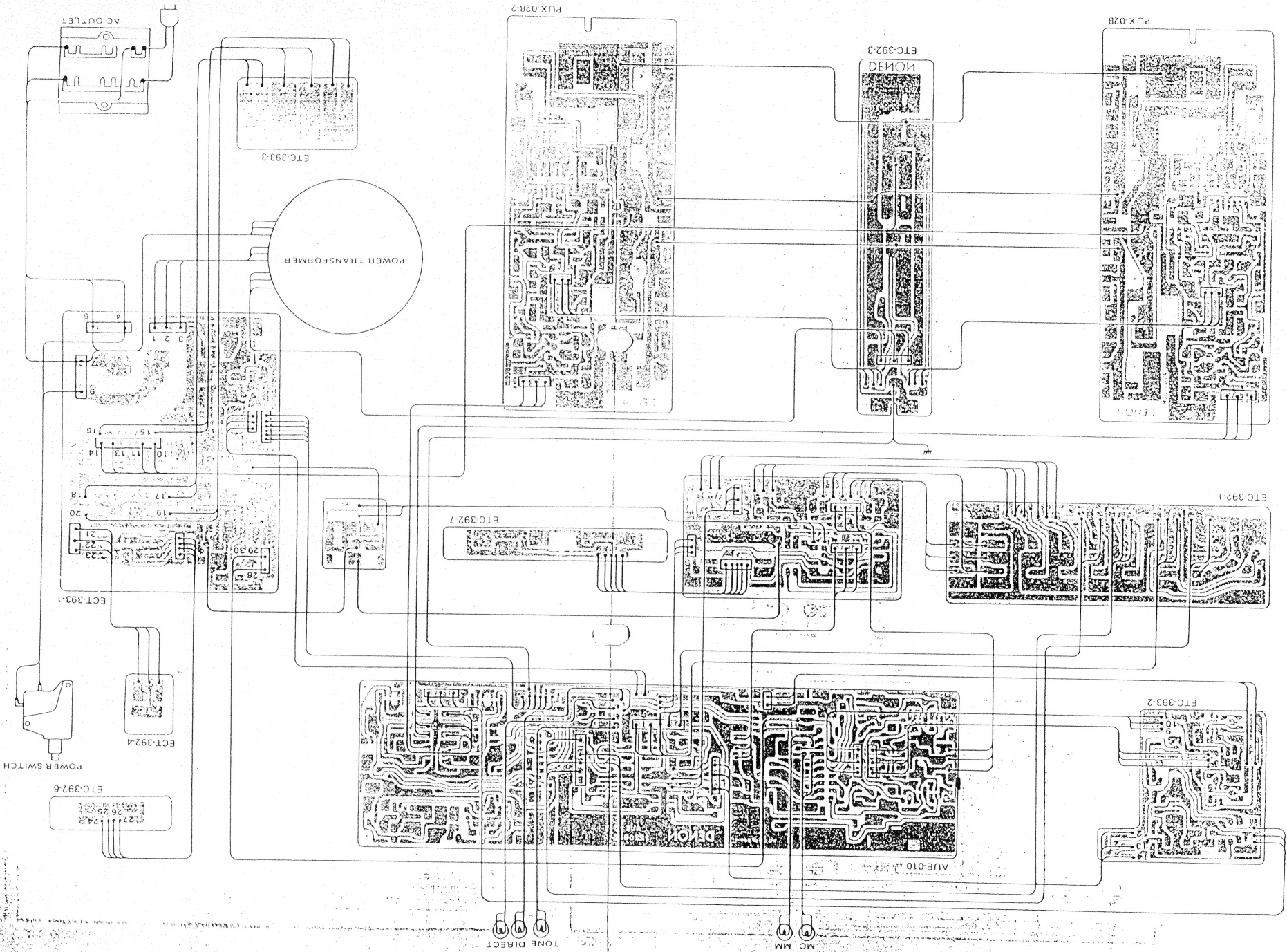
**NOTES:**  
 ALL RESISTANCE VALUES IN OHM, K = 1,000 OHM, M = 1,000,000 OHM.  
 ALL CAPACITANCE VALUES IN MICROFARAD, P = MICRO-MICRO FARAD.  
 EVERY VOLTAGES AND CURRENTS IS MEASURED AT NO SIGNAL INPUT CONDITION.  
 CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

# CONNECTION DIAGRAM

This connection diagram is viewed from the printed pattern side and used E3 ( U.S.A. & Canada) version.







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